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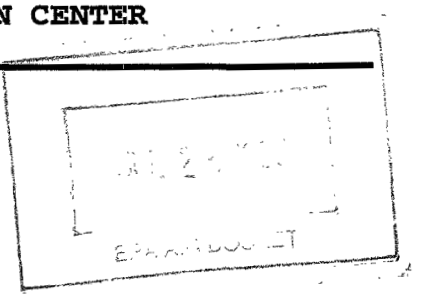

LIST OF VALIDATED TEST METHODS

INTRODUCTION

On June 13, 1991 the Administrator proposed 40 CFR Part 63, "National Emission Standards for Hazardous Air Pollutants for Source Categories: Proposed Regulations Governing Compliance Extensions for Early Reductions of Hazardous Air Pollutants." The regulations require that the emission reductions called for be determined by comparing the post-control emissions from a source with emissions in a base year. To demonstrate the post-control emission reduction, the source owner or operator must present verifiable and actual emission data for both the re- and post-control operations.

These verifiable and actual data will consist of source test results using validated methods. A validated method is defined as a measurement methodology with a demonstrated precision and bias over the measured concentration of the source's emission. A validated method may be an EPA Test Method, a validated conditional test method, or a test method validated according to the protocol in Method 301 (proposed with the above regulations). The regulation states that a list of validated methods may be obtained from the Emission Measurement Technical Information Center (EMTIC).

VALIDATED METHODS

The Atmospheric Research Exposure and Assessment Lab (AREAL) and Emission Measurement Branch (EMB) have developed an initial list of validated methods and source applicability. The following table is EMTIC's preliminary listing of validated methods; EMTIC is preparing a more complete and more detailed list of methods with validation and applicability status in a computer disk format. The purpose of this methods list is to provide direction for developing or applying validated air toxic emission test methods and provide a means for checking the applicability of proposed methods. This dynamic list is scheduled to be available initially in October 1991 and will be updated as additional methods are validated. The list also will be updated as validated methods are reported to EMTIC by various permitting authorities.

1. EPA Reference, or Test Methods published in the FEDERAL REGISTER. Citations include:

   40 CFR Part 51, Appendix M

40 CFR Part 52, §52.12 (pertaining to approved SIP's)
40 CFR Part 60, Appendix A*
40 CFR Part 61, Appendix B
40 CFR Part 63, Appendix A
40 CFR Part 763, Subpt.E, Appendix A
40 CFR Part 763, Subpt.F, Appendix A

* Test Method 18 is considered a self validating method. Properly conducted, the method may have broad applicability.

2. EPA conditional test methods as published through EMTIC. Citations include:

- CTM-001 Determination of Butadiene Emissions. Sampling and Analysis of Butadiene at a Synthetic Rubber Plant. EPA Method 18 procedure was validated for measurement of butadiene in the presence of styrene.

  Contact: Dr. J.C. Pau
  (919) 541-3680

- CTM-002 Determination of Particulate Matter (Screening Procedure). The screening procedure was evaluated at ammonium nitrate facilities.

  Contact: Mr. J. Brown
  (919) 541-0200

- CTM-003 Hi-Vol Method for PM. A particulate emission test method was validated for positive pressure bag-house controls. Method is applicable to low concentration, low humidity situations.

  Contact: Ms. C. Sorrell
  (919) 541-1064

- CTM-004 Determination of Hydrogen Chloride Emissions. Methodology has been validated at Municipal and Hazardous Waste Incinerators.

  Contact: Mr. J.H. Margeson
  (919) 541-2848

- CTM-005 Condensible Particulate Matter (Revised). The method was validated at wood waste and coal fired boilers.

  Contact: Ms. C. Sorrell
  (919) 541-1064

- CTM-006 Determination of Chromium Emissions from Chromium Electroplaters. This method has been validated for the subject source category.

  Contact: Mr. F. Clay
  (919) 541-5236

- CTM-008 Determination of Acrylonitrile from Stationary Sources. Determination of Acrylonitrile in Stationary Source Emissions by Impinger Sampling and Gas Chromatography with Nitrogen-Phosphorus Detection. The procedure was validated at a acrylic fiber plant where AN was used as raw material and a AN manufacturing plant.

  Contact: Dr. J.C. Pau
  (919) 541-3680

- CTM-009 Emission Rates of VOC through Cover Materials. The method was validated for cover membranes at hazardous waste storage, treatment, and disposal facilities.

  Contact: Ms. R. Dishakjian
  (919) 541-0443

- CTM-010 Determination of Perchloroethylene Content of Wet Waste Materials from filters and Still Bottoms. Method was validated at several perc drycleaning facilities.

  Contact: Mr. A. Wayne
  (919) 541-3576

- CTM-011 Determination of Halogenated Organics from stationary sources. The method was validated for halogenated compounds in nonparticulate laden sources.

  Contact: Mr. F. Curtis
  (919) 541-1063

3. The following test procedures also have been validated for the cited applications:

- Volatile Organic Sampling Train (VOST) Protocol. The VOST has been validated at a hazardous waste incinerator with five specific POHCs.

  Contact: Mr. T.J. Logan
  (919) 541-2580

- Determination of Selected Nitrogen-Containing Hazardous Pollutants in Complex Matrices by Gas Chromatography with a Nitrogen-Phosphorous Detector. The procedure was validated for outlet streams of a

scrubber unit at a chemical for the compounds plantaniline, nitrobenzene, and toluene.

Contact: Dr. J.E. Knoll
(919) 541-2952

- Chrome Analysis at a Ferrochrome Smelter, a Chemical Plant and a Refractory Brick Plant. Various techniques were validated for the determination of Cr^{6+}.

Contact: Dr. J.E. Knoll
(919) 541-2952

- Determination of Chromium Speciation -- Ferrochrome Smelter Dust.

Contact: Dr. J.E. Knoll
(919) 541-2952

- Validation of a Test Method for Formaldehyde Emissions. Three methods: peroxide impinger/ion chromatography (IC), dinitrophenylhydrazine-coated (DNPH) cartridge/high performance liquid chromatography (HPLC), and DNPH impinger/HPLC. Procedures validated at two formaldehyde manufacturing plants.

Contact: Dr. J.C. Pau
(919) 541-3680

- Method for Determination of Methylene Chloride Emissions at Stationary Sources.

Contact: Dr. J.E. Knoll
(919) 541-2952

- Analytical Method Evaluation for Measuring Ethylene Oxide Emissions from Commercial Dilute-Acid Hydrolytic Control Units.

Contact: Mr. J.H. Margeson
(919) 541-2848

- Semi-Volatile Organic Sampling Train Method (Semi-VOST) for measuring concentrations of principal organic hazardous constituents (POHCs) with boiling points greater than 100°C that are emitted from hazardous waste incinerators. The method was validated on 5 deuterated organic compounds (d_5-pyridine, d_8-toluene, d_5-chlorobenzene, d_{10}-o-xylene, and d_2-tetrachloroethane).

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(919) 541-2848

- Modified Method Five (MM5) Test Method for PCDDs and PCDFs. The method has been validated at a municipal waste combustor (MWC).

Contact: Dr. J.C. Pau
(919) 541-3680

- Methodology for Measuring Emissions of Chlorinated Solvents From Stationary Sources. An EPA Method 18 procedure was validated at several sources.

Contact: Dr. J.C. Pau
(919) 541-3680

- Thin Layer X-Ray Powder Diffraction (XRD) Methods for Semiquantitative Analysis of Asbestos Cement Pipe Industry Emissions: Analysis of Emission Samples by XRD and Electron Microscopy.

Contact: Mr. T.J. Logan
(919) 541-2580

- Method for Determining Asbestos Mass Emission Rate From Stationary Sources.

Contact: Mr. T.J. Logan
(919) 541-2580

- Methods for Determining the Polychlorinated Biphenyl Emissions from Incineration and Capacitor and Transformer Filling Plants.

Contact: Dr. J.C. Pau
(919) 541-3680

- An application of EPA Method 111 for the determination of Benzene From Stationary Sources.

Contact: Dr. J.E. Knoll
(919) 541-2842

- Procedures for Measuring Hexavalent Chromium Emissions from Hazardous Waste Incinerators.

Contact: Dr. J.E. Knoll
(919) 541-2842